

SPIKES

Appl. No. 10/509,083

March 3, 2008

RECEIVED
CENTRAL FAX CENTER

MAR 03 2008

AMENDMENTS TO THE CLAIMS:

Please amend claims 24 and 25 as follows.

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (previously presented) A bearing comprising:

a first bearing surface;

a second bearing surface separated from said first bearing surface by a gap, said gap having a convergent region and containing fluid, wherein, said first bearing surface moves relative to said convergent region so as to entrain said fluid into movement towards said convergent region and wherein said second bearing surface slips relative to said fluid and pressure within said fluid between said first bearing surface and said second bearing surface supports a load applied between said first bearing surface and said second bearing surface.

2. (original) A bearing as claimed in claim 1, wherein said second bearing surface is substantially non-wetted by said fluid.

3. (previously presented) A bearing as claimed in claim 1, wherein said first bearing surface is wetted by said fluid.

4. (previously presented) A bearing as claimed claim 1, wherein said fluid is an oil and said first bearing surface is oleophilic.

SPIKES

Appl. No. 10/509,083

March 3, 2008

5. (previously presented) A bearing as claimed in claim 1, wherein said fluid is an oil and said second bearing surface is oleophobic.

6. (previously presented) A bearing as claimed in claim 1, wherein said fluid is a film of fluid disposed upon said first bearing surface.

7. (previously presented) A bearing as claimed in claim 1, wherein said bearing is immersed in said fluid.

8. (original) A bearing as claimed in claim 6, wherein said second bearing surface is part of a data access head operable to access data stored on a movable data storage media, said first bearing surface being a surface of said data storage media.

9. (original) A bearing as claimed in claim 8, wherein said movable data storage media is a magnetic disc and said data access head is a magnetic disc data access head.

10. (previously presented) A bearing as claimed in claim 1, wherein said bearing is part of an electromechanical system, said first surface being part of a moving first component and said second surface being part of a stationary second component.

11. (original) A bearing as claimed in claim 10, wherein the electromechanical system is a microelectromechanical system.

SPIKES

Appl. No. 10/509,083

March 3, 2008

12. (previously presented) A bearing as claimed in claim 1, wherein said first surface has a surface energy of greater than 0.05 J/m^2 .

13. (previously presented) A bearing as claimed in claim 1, wherein said second surface has a surface energy of less than 0.05 J/m^2 .

14. (previously presented) A bearing as claimed in claim 1, wherein said first surface is one of;

a metal; and

a ceramic.

15. (previously presented) A bearing as claimed in claim 1, wherein said second surface is one of;

a polymer;

a fluorinated surfactant coating; and

a hydrocarbon surfactant coating.

16. (previously presented) A bearing as claimed in claim 1, wherein said second bearing surface has a surface roughness less than 0.01 micron root mean square when measured with an upper cut-off length of 1 micron .

17. (previously presented) A bearing as claimed in claim 1, wherein said fluid has a surface tension higher than a critical surface tension of said second bearing surface.

SPIKES

Appl. No. 10/509,083

March 3, 2008

18. (previously presented) A bearing as claimed in claim 1, wherein said fluid is one of;

water;

glycerol;

an ionic liquid; and

a synthetic lubricant.

19. (original) A bearing as claimed in claim 18, wherein said synthetic lubricant is an

ester.

20. (original) A bearing as claimed in claim 18, wherein said synthetic lubricant is an

ether.

21. (previously presented) A bearing as claimed in claim 1, wherein said first bearing

surface and said second bearing surface is one of;

a bulk material;

a surface treatment; and

a coating.

22. (previously presented) A bearing as claimed in claim 1, wherein said fluid contains an

additive to form a non-wetting film at the second bearing surface.

SPIKES

Appl. No. 10/509,083

March 3, 2008

23. (previously presented) A bearing comprising:

a fluid slippage surface;

a fluid entrainment surface separated by a gap from said fluid slippage surface, said gap having a convergent region and an intermediate lubricant fluid therein, said intermediate lubricant fluid adhering at a first interface to said fluid entrainment surface and non-adhering at a second interface to said fluid slippage surface, wherein movement of said fluid entrainment surface towards said convergent region generates an increased pressure in said fluid in said convergent region.

24. (currently amended) A bearing as claimed in claim 23, wherein movement of said ~~wettable~~fluid entrainment surface entrains said lubricant layer into said convergent region so as to generate a pressure within said intermediate lubricant layer for supporting a load.

25. (currently amended) A bearing as claimed in claim 24, wherein movement of said ~~wettable~~fluid entrainment surface results in slipping between said second interface of said intermediate lubricant layer and said ~~substantially non-wettable~~fluid slippage surface.

26. (cancelled).

27. (previously presented) A method of supporting a first surface by a second surface for relative movement with reduced friction, said method comprising the steps of:

providing a fluid;

providing said first surface with a fluid entrainment capability with respect to said fluid;

SPIKES

Appl. No. 10/509,083

March 3, 2008

providing said second surface with a fluid slippage capability with respect to said fluid;

locating said surfaces so as to define a gap therebetween with said fluid located in said gap and said gap having a convergent portion; and

moving said first surface towards said convergent portion of said gap thereby generating a pressure in said fluid, said pressure acting upon both surfaces.

28. (previously presented) A bearing for supporting a first bearing portion by a second bearing portion for relative movement with reduced friction, said bearing comprising:

a fluid;

a first surface on said first bearing portion, said first surface having a fluid entrainment capability with respect to said fluid;

a second surface on said second bearing portion, said second surface having a fluid slippage capability with respect to said fluid, said second surface defining a gap between said surfaces, wherein said gap includes a convergent portion and wherein said fluid is located in said gap, wherein, during relative movement of said first surface towards said convergent portion, said surfaces and said fluid comprise a means for generating an increased pressure in said fluid in the region of said convergent portion of said gap.